

1107-46-73

Palle E.T. Jorgensen* (palle-jorgensen@uiowa.edu), Dept Math, MLH, University of Iowa,
Iowa City, IA 52242. *Parseval-frames in Hilbert spaces over infinite networks of resistors.*

We discuss natural systems of Parseval-frame vectors for Hilbert spaces induced by infinite networks of resistors. More precisely, an infinite network of resistors is an infinite graph G with vertices and edges (countable), and with resistors assigned to each edge in G . We assume further that G is connected. From this assignment we may then define a Hilbert space H of finite energy voltage functions (voltage distribution on the vertex set V .) We show that the finite energy Hilbert space H is a relative reproducing kernel Hilbert space; specifically the dipoles form a non-orthogonal system of vectors in H . Moreover, these dipole vectors can be re-scaled to yield a Parseval frame for H . Details and applications will be presented in the talk. (Received December 28, 2014)